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**Amendments to Claims:****RECEIVED  
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Please amend the claims as in the following listing:

What is claimed is:

- 1 1. (Currently amended) A magnetic head comprising:  
2 a read sensor which is of Current Perpendicular to the Plane (CPP) configuration  
3 including:  
4 at least one primary pinned layer;  
5 a barrier layer;  
6 a free layer;  
7 an in-stack biasing structure having net magnetic moment  $dM=0$ , which  
8 acts to stabilize said free layer by exchange coupling.
- 1 2. (Original) The magnetic head of claim 1, wherein:  
2 said in-stack biasing structure includes paired layers of opposite magnetic  
3 orientation which are separated by a spacer layer, such that the net magnetic moment of  
4 said paired layers is substantially zero.
- 1 3. (Original) The magnetic head of claim 1, wherein:  
2 said  $dM=0$  corresponds to a  $dT$  less than  $5 \times 10^{-10}$  meters, where magnetic  
3 thickness  $T = M \times t$ , and  $M$  equals magnetization,  $t$  equals thickness of material, and  $dT$   
4 is the differential in the layer thicknesses.
- 1 4. (Original) The magnetic head of claim 1, wherein:  
2 said in-stack biasing structure includes a self-pinned layer pair.
- 1 5. (Original) The magnetic head of claim 1, wherein:  
2 said at least one primary pinned layer includes a pair of primary pinned layers,  
3 separated by a spacer layer.
- 1 6. (Original) The magnetic head of claim 5, further comprising:  
2 at least one layer of AFM material which acts to pin said pair of primary pinned  
3 layers.
- 1 7. (Original) The magnetic head of claim 5, wherein:  
2 said pair of primary pinned layers are self-pinned layers.
- 1 8. (Canceled)
- 1 9. (Original) A disk drive comprising:  
2 at least one hard disk;  
3 at least one magnetic head adapted to fly over said hard disk for writing data on  
4 said hard disk, and having an air bearing surface, said magnetic head including:

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- 5 a read sensor which is of Current Perpendicular to the Plane (CPP)  
6 configuration including:  
7 at least one primary pinned layer;  
8 a barrier layer;  
9 a free layer;  
10 an in-stack biasing structure having  $dM=0$ , which acts to stabilize  
11 said free layer by exchange coupling.
- 1 10. (Original) The disk drive of claim 9, wherein:  
2 said in-stack biasing structure includes paired layers of opposite magnetic  
3 orientation which are separated by a spacer layer, such that the net magnetic moment of  
4 said paired layers is substantially zero.
- 1 11. (Original) The disk drive of claim 9, wherein:  
2 said  $dM=0$  corresponds to a  $dT$  less than  $5 \times 10^{-10}$  meters, where magnetic  
3 thickness  $T = M \times t$ , and  $M$  equals magnetization,  $t$  equals thickness of material, and  $dT$   
4 is the differential in the layer thicknesses.
- 1 12. (Original) The disk drive of claim 9, wherein:  
2 said in-stack biasing structure includes a self-pinned layer pair.
- 1 13. (Original) The disk drive of claim 9, wherein:  
2 said at least one primary pinned layer includes a pair of primary pinned layers,  
3 separated by a spacer layer.
- 1 14. (Original) The disk drive of claim 13, further comprising:  
2 at least one layer of AFM material which acts to pin said pair of primary pinned  
3 layers.
- 1 15. (Original) The disk drive of claim 13, wherein:  
2 said pair of primary pinned layers are self-pinned layers.
- 1 16. (Canceled)
- 1 17. (Canceled)
- 1 18. (Canceled)
- 1 19. (Canceled)
- 1 20. (Canceled)
- 1 21. (Canceled)